

UNITED STATES PATENT OFFICE.

JUDSON A. DE CEW, OF NEW YORK, N. Y.

METHOD OF SIZING CELLULOSE FIBERS.

No Drawing.

Application filed September 19, 1925. Serial No. 57,470.

Engine sizing of machine made paper by means of rosin size and sulphate of alumina is carried on in the beating engine or mixer. Sometimes the alum is added before the size and sometimes the size is added to the paper stock before the alum.

The size however is always coagulated before the beater is discharged.

After the stock leaves the beater, it is passed through a beating or grinding engine, called a Jordan, where a violent beating action is given to the mass.

The coagulated sizing material is in a very highly dispersed and hydrated condition when it is freshly precipitated, but as it passes through the Jordan in the presence of excess of sulphate of alumina, the violent beating action has a strong dehydrating action on the alumina and rosin hydrates. Moreover, the sizing material that is precipitated upon the surface of the fibers will be scraped off and left as a filling material between the fibers.

The discovery of this fact explains why the sizing from the paper machine is never as efficient as that carried out by means of laboratory tests.

When the size is added to the beater, as is the common practice, it may be coagulated by impurities such as salts of calcium or magnesium, which are present in the water surrounding the stock. These salts may be a part of the natural water or may be extracted from impurities in the pulp itself. The size is always coagulated in the beater either by earth impurities or by the sulphate of alumina, used for sizing, or both,

and is materially injured by the beating action of the Jordan, and the only way to avoid this condition is to keep the size out of the stock until after it has passed through the Jordan.

This application may be carried out by adding the size and alum to the paper stock after it has passed through the Jordan treatment, or the size may be added after the Jordan, to the stock which has already been treated with sulphate of alumina in the beater.

There are certain kinds of paper where hydration is not required and where it is desirable to treat the stock in the beater with alum in water to destroy earth carbonates before the sizing operation. When this condition exists, the alum is added to the stock in the beater which is then passed through the Jordan and the size added in a mixing apparatus between the Jordan and the paper machine.

I claim as my invention—

1. A method of sizing paper, which consists in adding the size and alum to the paper stock after the fibers of said stock have passed through the Jordan.

2. A method of sizing paper, which consists in adding a size solution to the paper stock after said stock has been treated by the Jordan.

3. A method of sizing paper, which consists in coagulating the size in the stock after said stock has passed through the Jordan.

In testimony whereof, I affix my signature.

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JUDSON A. DE CEW.

DISCLAIMER

1,589,947.—*Judson A. De Cew*, New York, N. Y. METHOD OF SIZING CELLULOSE FIBERS. Patent dated June 22, 1926. Disclaimer filed November 8, 1934, by the assignee, *Process Engineers, Inc.*

Hereby enters this disclaimer of claims 1 and 2 and of that part of the thing patented which is embraced by claims 1 and 2 in said specification, which are in the following words, to wit:

"1. A method of sizing paper, which consists in adding the size and alum to the paper stock after the fibers of said stock have passed through the Jordan.

"2. A method of sizing paper, which consists in adding a size solution to the paper stock after said stock has been treated by the Jordan."

[Official Gazette December 4, 1934.]

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